

XD6510TF

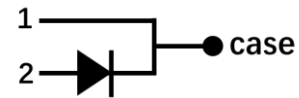
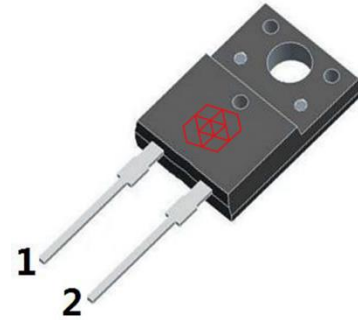
650V 10A SiC Schottky Barrier Diode in TO-220F Insulated Package

Datasheet version: 2.0 Preliminary

Features

BV_{dss}	I_f (135°C)	I_f (110°C)	Q_c
650 V	8 A	10 A	28 nC

- No reverse recovery
- High speed switching
- Low switching losses
- Positive temperature coefficient



Applications

- Switching Power Supplies
- Adapters, Quick Chargers
- Power Factor Corrections
- Motor Drives

Description

- These devices are 650 SiC Schottky Barrier Diodes (SBD) with zero reverse recovery that allows systems to operate at higher switching frequencies. Lower heat dissipation requirements and higher system efficiency can be achieved in this TO-220F internally insulated package.

Device Characteristics

Static Parameters				Test data			
	Sym.	Parameters	Conditions	Min	Typical	Max	Unit
1	V _{DC}	DC Blocking Voltage	I _R =100 μA	650			V
2	V _F	Forward Voltage	I _F =4A, T _j =25°C		1.45	1.7	V
			I _F =4A, T _j =175°C		1.8	2.5	
3	I _R	Reverse Current	V _R =650V, T _j =25°C		1	40	μA
			V _R =650V, T _j =175°C		5	200	
4	C	Total Capacitance	V _R =0V, f=1MHz		535		pF
			V _R =200V, f=1MHz		53		
			V _R =400V, f=1MHz		45		
5	Q _C	Total capacitive charge	V _R =400V		28		nC
6	E _C	Capacitance Stored Energy	V _R =400V		4.3		μJ
Thermal Parameters				Test data			
	Sym.	Parameters	Conditions	Min	Typical	Max	Unit
1	R _{th(j-c)}	Thermal resistance			4		°C/w

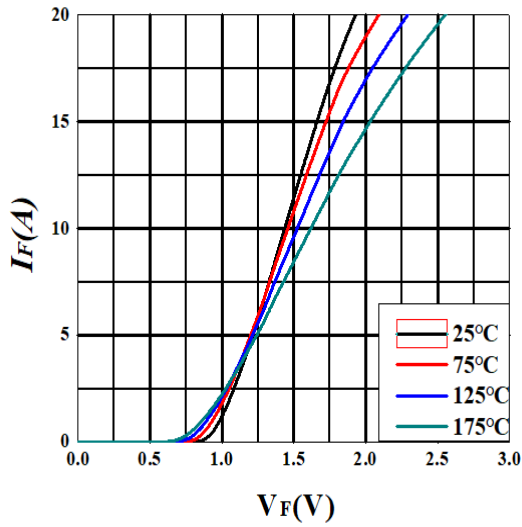
Absolute Max. Ratings

	Symbols	Parameters	Test Conditions	Value	Unit
1	V_{RR-max}	Reverse Voltage (Repetitive Peak)	$T_C = 25^\circ C$	650	V
2	V_{RS-max}	Reverse Voltage (Surge Peak)	$T_C = 25^\circ C$	650	V
3	V_{dc-max}	Reverse Voltage (DC)	$T_C = 25^\circ C$	650	A
4	I_{F-max}	Continuous Forward Current	$T_C = 25^\circ C$	16	A
			$T_C = 135^\circ C$	8	
			$T_C = 110^\circ C$	10	
5	I_{FS-max}	Non-repetitive Forward Current (Surge)	$T_C = 25^\circ C$ $t_p = 10ms$ Half Sine Pulse	80	A
6	$P_{total-max}$	Total Power Dissipation	$T_C = 25^\circ C$	38	W
7	$\int i^2 dt_{max}$	i^2t value	$T_C = 25^\circ C$ $t_p = 10ms$	32	A ² s
8	T_{o-max}	Operation Temperature		-55 to 175	°C
9	$T_{s-storage}$	Storage temperature		-55 to 175	°C
10	M	Mounting Torque	M3 Screw	1	Nm

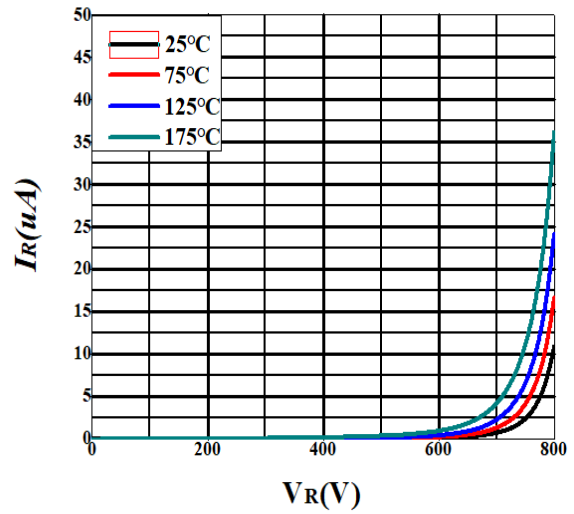
Ordering

Order Code	Package Type	Packaging Method	Qty
$XD6510TF$	TO-220F-2L	Tube	1000

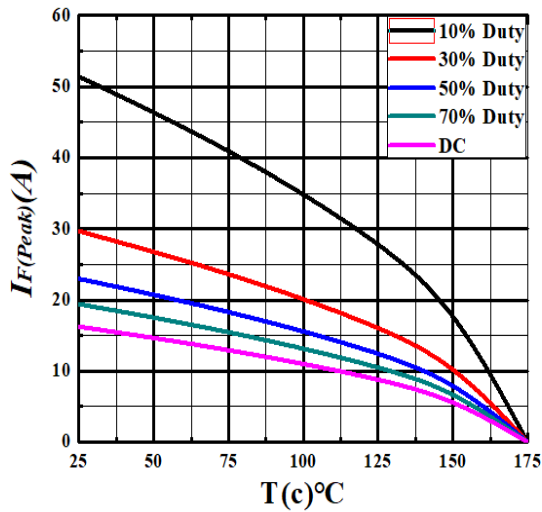
Electrical Performance



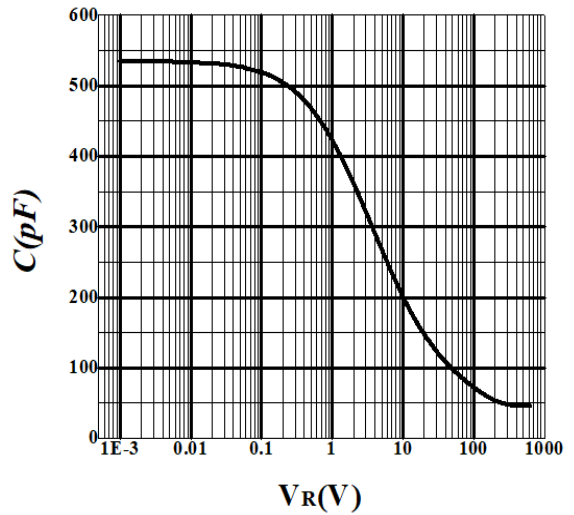
Forward Characteristics



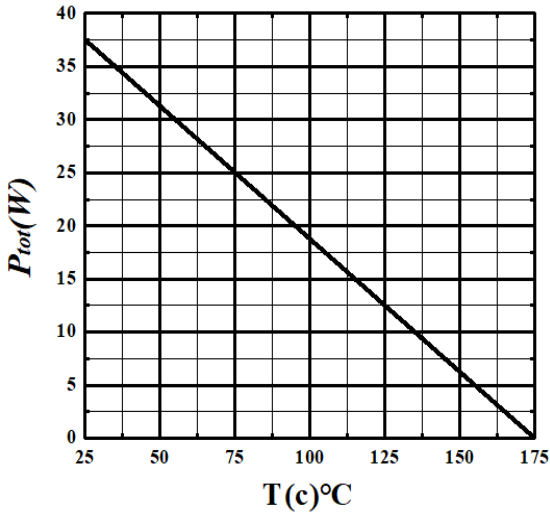
Reverse Characteristics



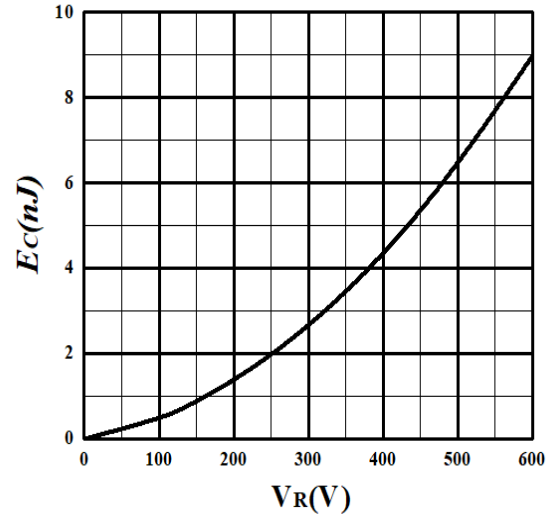
Current Derating



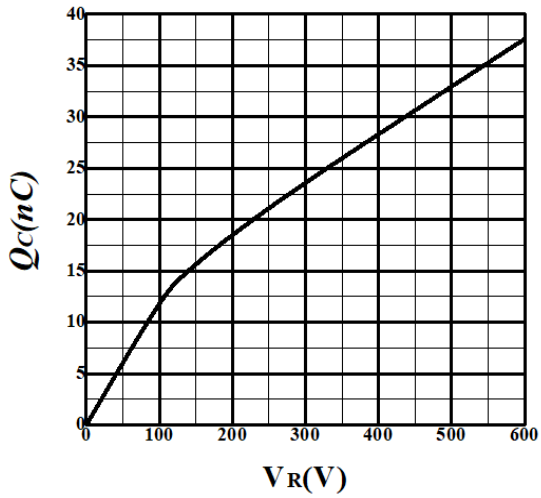
Capacitance vs. V_R



Power Derating

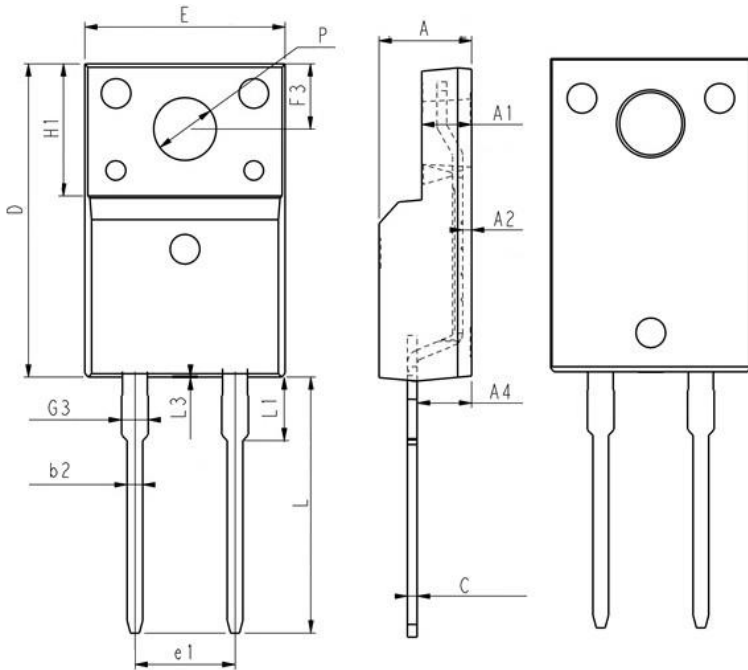


Capacitance Stored Energy



Total Capacitance Charge vs. V_R

Package Information



SYMBOL	mm		
	MIN	NOM	MAX
A	4.50	4.70	4.90
A1	2.34	2.54	2.74
A2	0.30	0.45	0.60
A4	2.56	2.76	2.96
b2	0.75	0.80	0.90
C	0.45	0.50	0.60
D	15.57	15.87	16.17
E	9.96	10.16	10.36
e1	5.08 BSC		
F3	3.15	3.30	3.45
G3	1.25	1.35	1.50
H1	6.50	6.70	6.90
L	12.68	12.98	13.28
L1	3.08	3.23	3.38
L3	-	-	0.20
P dia.	3.03	3.18	3.38